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NOTICE OF ALLOWANCE AND FEE(S) DUE

20583 7590 JONES DAY 222 EAST 41ST ST NEW YORK, NY 10017 05/15/2009

EXAMINER

ROBINSON, HOPE A

PAPER NUMBER

1652

ARTHNIT DATE MAILED: 05/15/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,406	03/14/2005	Rafal Swiercz	9471-011-999	8301

TITLE OF INVENTION: MODIFIED PLASMINOGEN ACTIVATOR INHIBITOR TYPE-1 AND METHODS BASED THEREON

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	08/17/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. <u>PROSECUTION ON THE MERITS IS CLOSED.</u> THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

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B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

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III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

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appropriate. All further indicated unless corrects maintenance fee notifica	correspondence includir ed below or directed oth	or transmitting the 1880 ig the Patent, advance of nerwise in Block 1, by (a	rders and notification of n a) specifying a new corres	naintenance fees wi pondence address;	II be mailed and/or (b) inc	to the current licating a sepa	correspondence address as ate "FEE ADDRESS" for
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							(Depositor's name)
							(Signature)
							(Date)
APPLICATION NO.	FILING DATE		FIRST NAMED INVENTOR		ATTORNEY D	OCKET NO.	CONFIRMATION NO.
10/506,406 TITLE OF INVENTION	03/14/2005 : MODIFIED PLASMIN	KOGEN ACTIVATOR IN	Rafal Swiercz HIBITOR TYPE-I AND	METHODS BASEI	9471-01 O THEREON		8301
APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE	FEE TOTA	AL FEE(8) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0		\$1810	08/17/2009
EXAM	IINER	ART UNIT	CLASS-SUBCLASS				
ROBINSO	N, HOPE A	1652	530-350000	•			
CFR 1.363). Change of corresp Address form PTO/SI Fee Address" ind PTO/SB/47; Rev 03-C Number is required. ASSIGNEE NAME A	ND RESIDENCE DATA	nge of Correspondence Indication form ed. Use of a Customer A TO BE PRINTED ON 2	2. For printing on the p (1) the names of up to or agents OR, alternative (2) the name of a single registered attorney of a 2 registered patent attoe listed, no name will be THE PATENT (print or type data will appear on the re.	3 registered patent yely, e firm (having as a a gent) and the name: meys or agents. If no printed.	member a s of up to o name is	23	scument has been filed for
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4a. The following fee(s) Issue Fee Publication Fee (N Advance Order -	vo small entity discount p		D. Payment of Fee(s): (Plea A check is enclosed. Payment by credit can The Director is hereby overpayment, to Depo	d. Form PTO-2038	is attached.		
- 11	s SMALL ENTITY state	is. See 37 CFR I.27.	b. Applicant is no long				
NOTE: The Issue Fee an interest as shown by the	d Publication Fee (if req records of the United Sta	uired) will not be accepted tes Patent and Trademark	d from anyone other than to Office.	he applicant; a regist	tered attorney	or agent; or th	e assignee or other party in
Authorized Signature				Date			
Typed or printed nam			Registration No				
This collection of inform an application. Confiden submitting the complete this form and/or suggests Box 1450, Alexandria, V Alexandria, Virginia 223	nation is required by 37 C tiality is governed by 35 d application form to the ions for reducing this but 'irginia 22313-1450. DC k13-1450.	FR 1.311. The informatic U.S.C. 122 and 37 CFR USPTO. Time will vary rden, should be sent to the O NOT SEND FEES OR (on is required to obtain or r 1.14. This collection is est depending upon the indiv e Chief Information Office COMPLETED FORMS TO	etain a benefit by the imated to take 12 m idual case. Any con r, U.S. Patent and T O THIS ADDRESS.	e public whice inutes to com- nments on the rademark Off SEND TO: O	h is to file (and aplete, including amount of tin fice, U.S. Depa Commissioner f	by the USPTO to process) g gathering, preparing, and the you require to complete rtment of Commerce, P.O. or Patents, P.O. Box 1450,

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20583	7590	05/15/2009		EXAM	IINER						
JONES DAY				ROBINSON, HOPE A							
222 EAST 41ST ST			ART UNIT	PAPER NUMBER							
NEW YORK, NY 10017				1652							

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)

(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 0 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 0 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Application No. Applicant(s) 10/506,406 SWIERCZ ET AL. Notice of Allowability Examiner Art Unit HOPE A ROBINSON 1652 -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS. This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308. This communication is responsive to 4/27/09. The allowed claim(s) is/are 1,2,4-6,9-16,21-23,29-31 and 33. 3. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a) \square All b) ☐ Some* c) ☐ None of the: 1. T Certified copies of the priority documents have been received. 2. Certified copies of the priority documents have been received in Application No. 3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)). * Certified copies not received: _____. Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. THIS THREE-MONTH PERIOD IS NOT EXTENDABLE. A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient. CORRECTED DRAWINGS (as "replacement sheets") must be submitted. (a) Including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached 1) hereto or 2) to Paper No./Mail Date (b) including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d). 6. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL. Attachment(s) 1. | Notice of References Cited (PTO-892) 5. Notice of Informal Patent Application 2. Notice of Draftperson's Patent Drawing Review (PTO-948) Interview Summary (PTO-413), Paper No./Mail Date Information Disclosure Statements (PTO/SB/08). 7. X Examiner's Amendment/Comment Paper No./Mail Date 4. T Examiner's Comment Regarding Requirement for Deposit 8. T Examiner's Statement of Reasons for Allowance of Biological Material □ Other .

/Hope A. Robinson/ Primary Examiner, Art Unit 1652 Application/Control Number: 10/506,406 Page 2

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EXAMINER'S AMENDMENT

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 19, 2009 has been entered.

- The Supplemental Amendment filed on April 27, 2009 has been received and entered.
- 3. An Examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
- Authorization of this Examiner's amendment was given in a telephone interview with Ms. Susie Cheng on May 4, 2009.
- The Claims have been amended as follows:
 Please cancel claim 32 without prejudice.

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- 1. (Currently Amended) A modified plasminogen activator inhibitor type-1 (PAI-1) molecule comprising [the] an amino acid sequence that is at least 95% identical to the amino acid sequence of SEQ ID NO:2, in which one or more amino acid residues are each substituted by an amino acid residue that contains a sulfhydryl group, such that one or more disulfide bridges are formed at a position selected from the group consisting of 31, 97, 192, 197, 347, and 355 of SEQ ID NO:2, [and] wherein said modified PAI-1 molecule has a half-life that is longer than the half-life of a corresponding wild-type PAI-1 molecule, and wherein said modified PAI-1 molecule inhibits urokinase plasminogen activator.
- 2. (Currently Amended) The modified PAI-1 molecule of claim 1, which has [an] a half-life of 3 hours, 6 hours, 10 hours, 20 hours, 50 hours, 60 hours, 70 hours, 90 hours, 100 hours, 150 hours, 200 hours, 10 days, 12 days, 16 days, 30 days, or 60 days.
- (Currently Amended) The modified PAI-1 molecule of claim 1, wherein said residue that contains a sulfhydryl group is cysteine.
- 5. (Currently Amended) A modified plasminogen activator inhibitor type-1 (PAI-1) molecule comprising the amino acid sequence of SEQ ID NO:2, [wherein] except for substitution by an amino acid residue that contains a sulfhydryl group at one or more [amino acid residues of SEQ ID NO:2 is substituted by an amino acid residue

that contains a sulfhydryl group at] of positions 31, 97, 192, 197, 347, or 355 of SEQ ID NO:2, wherein said modified PAI-1 molecule has a half-life that is longer than the half-life of a corresponding wild-type PAI-1 molecule, and wherein said modified PAI-1 molecule inhibits urokinase plasminogen activator.

- 6. (Currently Amended) A modified plasminogen activator inhibitor type-1

 (PAI- 1) molecule comprising the amino acid sequence of SEQ ID NO:2, [wherein]

 except for substitution by an amino acid residue that contains a sulfhydryl group at [one or more amino acid residues is substituted by an amino acid residue that contains a sulfhydryl group at] positions (i) 31 and 97 of SEQ ID NO:2; (ii) 192 and 347 of SEQ ID NO:2; (iii) 197 and 355 of SEQ ID NO:2; (iv) 31, 97, 192, and 347 of SEQ ID NO:2; (v) 31, 97, 197, and 355 of SEQ ID NO:2; (vi) 192, 197, 347, and 355 of SEQ ID NO:2; or (vii) 31, 97, 192, 197, 347, and 355 of SEQ ID NO:2; (vi) and wherein said modified PAI-1 molecule has a half-life that is longer than the half-life of a corresponding wild-type PAI-1 molecule, and wherein said modified PAI-1 molecule inhibits urokinase plasminogen activator.
- 9.(Currently Amended) The modified PAI-1 molecule of claim 1, wherein said molecule inhibits tissue plasminogen activator.
- 10. (Currently Amended) The modified PAI-1 molecule of claim 1, wherein said molecule augments endogenous PAI-1 function.

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11. (Currently Amended) A method of producing a modified plasminogen activator inhibitor type-1 molecule said method comprising:

- (a) introducing into a cell a nucleic acid molecule encoding a modified PAI-1 molecule comprising [the] an amino acid sequence that is at least 95% identical to the amino acid sequence of SEQ ID NO:2, in which one or more amino acid residues are each substituted by an amino acid residue that contains a sulfhydryl group, such that one or more disulfide bridges are formed at a position selected from the group consisting of 31, 97, 192, 197, 347, and 355 of SEQ ID NO:2, [and] wherein said modified PAI-1 molecule has a half-life that is longer than the half-life of a corresponding wild-type PAI-1 molecule and wherein said modified PAI-1 molecule inhibits urokinase plasminogen activator; and
- (b) culturing the cell under conditions suitable for expression of the modified PAI-1 molecule.
- 12. (Currently Amended) A method of producing a modified plasminogen activator inhibitor type- 1 (PAI- 1) molecule, said method comprising:
- (a) introducing into a cell a nucleic acid molecule encoding a modified PAI-1
 molecule said molecule comprising the amino acid sequence of SEQ ID NO:2,
 [wherein] except for substitution by an amino acid residue that contains a sulfhydryl
 group [one or more amino acid residues of SEQ ID NO:2 are each substituted by an
 amino acid residue that contains a sulthydryl group] at positions 31, 97, 192, 197, 347,

PAI-1 molecule.

[and] or 355 of SEQ ID NO:2, wherein said modified PAI-1 molecule has a half life that is longer than the half-life of a corresponding wild-type PAI-1 molecule, and wherein said modified PAI-1 molecule inhibits urokinase plasminogen activator; and

- (b) culturing the cell under conditions suitable for expression of the modified PAI-1 molecule.
- 13. (Currently Amended) A method of producing a modified plasminogen activator inhibitor type-1(PAI-1) molecule, said method comprising:

(a) introducing into a cell a nucleic acid molecule encoding a modified PAI-1

molecule, said molecule comprising the amino acid sequence of SEQ ID NO:2, [in which] except for substitution by an amino acid residue that contains a sulfhydryl group [one or more amino acid residues are each substituted by an amino acid residue that contains a sulfhydryl group] at positions (i) 31 and 97; (ii) 192 and 347; (iii) 197 and 355; (iv) 31, 97, 192, and 347; (v) 31, 97, 197, and 355; (vi) 192, 197, 347, and 355; or (vii) 31, 97, 192, 197, 347, and 355, [and] wherein said modified PAI-1 molecule has a half life that is longer than the half-life of a corresponding wild-type PAI-1 molecule, and wherein said modified PAI-1 molecule inhibits urokinase plasminogen activator; and (b) culturing the cell under conditions suitable for expression of the modified

15. (Currently Amended) A method of treating cancer in a subject in need thereof [suffering therefrom], said method comprising administering to [a] the subject [in which such treatment is desired] an effective amount of the modified PAI-1 molecule of claim 1.

16. (Currently Amended) The method of claim 15, wherein said cancer is selected from the group consisting of breast cancer, colon cancer, ovarian cancer, lung cancer, prostate cancer, melanoma, leukemia, lung cancer, skin cancer, pancreatic cancer, bladder cancer, sarcoma, and uterine cancer.

- 21. (Currently Amended) A method of treating urokinase plasminogen activator-mediated fibrinolysis in a subject in need thereof, said method comprising administering to [a] the subject [in which such treatment is desired] an effective amount of the modified PAI-1 molecule of claim 1.
- 22. (Currently Amended) A method of treating tissue plasminogen activator-mediated fibrinolysis in a subject in need thereof, said method comprising administering to [a] the subject [in which such treatment is desired] an effective amount of the modified PAI-1 molecule of claim 1.
- 23. (Currently Amended) A pharmaceutical composition comprising a therapeutically effective amount of the modified PAI- 1 molecule of claim 1[;] and a pharmaceutically acceptable carrier.

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29. (Currently Amended) A modified plasminogen

activator inhibitor type-1(PAI-1) molecule comprising the amino acid sequence of SEQ ID NO:2 [wherein] except for substitution by an amino acid residue that contains a sulfhydryl group [amino acid residues] at positions: (i) 31 and 97 of SEQ ID NO:2; (ii) 192 and 347 of SEQ ID NO:2; (iii) 197 and 355 of SEQ ID NO:2; (iv) 31, 97, 192, and 347 of SEQ ID NO:2; (v) 31, 97, 197, and 355 of SEQ ID NO:2; (vi) 192, 197, 347 and 355 of SEQ ID NO:2; or (vii) 31, 97, 192, 197, 347, and 355 of SEQ ID NO:2, [are substituted with amino acid residues that contain a sulfhydryl group], wherein said modified PAI-1 molecule inhibits urokinase plasminogen activator.

- 30. (Currently Amended) A method of producing a modified plasminogen activator inhibitor type-1 (PAI-1) molecule said method comprising:
- (a) introducing into a cell a nucleic acid molecule encoding the modified PAI-1 molecule of claim 1; and
- (b) culturing the cell under conditions suitable for expression of the modified PAI-1 molecule.
- 33. (Currently Amended) The [modified] modified PAI-1 molecule of any one of claims1, 5, [and] or 6, wherein the half-life is an in vivo half-life.

EXAMINER'S COMMENTS

4. The restriction requirement of record has been withdrawn in part, rejoining

method claims.

5. Any comments considered necessary by applicant must be submitted no later

than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on

Statement of Reasons for Allowance".

Conclusion

6. Claims 1-2, 4-6, 9-16, 21-23, 29-31 and 33 are allowable.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Hope A. Robinson whose telephone number is 571-272-

0957. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Nashaat Nashed, can be reached at (571) 272-0934. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Hope A. Robinson/
Primary Examiner, Art Unit 1652